

REMARKS

Claims 1-6, 8 and 9 are all the claims pending in the application.

I. Detailed Action

In paragraph 2 of the Office Action, the Examiner indicates that Applicants' arguments with respect to the rejection of claim 1-6, 8 and 9 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Meyer et al (U.S. Patent 5,854,346) and the rejection of claim 3 under 35 U.S.C. § 112, 2nd paragraph have been fully considered and are persuasive. The final rejection has been withdrawn.

However, the Action states that new grounds of rejection are made in view of Nakado (JP 2001-098145), Saito (JP 62-187756) and Deyrup et al (U. S. Patent 4,912,167). Applicants believe this to be an inadvertent error since Saito and Deyrup are not mentioned in the body of the Action. Applicants respectfully request clarification for the record in the next Action.

II. Response to Claim Rejections

In paragraph 6 of the Office Action, claims 1-6, 8 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable as obvious over Yoshitomo¹ (JP 2001-098145) (hereinafter JP '145) in view Meyer (U. S. Patent 5,854,346).

Regarding claims 1-3, 6 and 9, the Examiner relies on JP '145 for the disclosure of a thermoplastic polyester resin composition obtained by compounding 100 parts by weight of a thermoplastic polyester resin (A) with 0.1-10 parts by weight of a carboxylic acid reactive group containing polymer (B-1). See Abstract. The polymer (B-1) may have an epoxy group, such as

¹ The Examiner refers to Nakado in the Action.

glycidyl methacrylate which is mentioned as one of two preferred monomers having an epoxy group, and may polymerize with a copolymerizable monomer, including 2-ethylhexyl acrylate. See paragraphs [0018]-[0019]. It is further disclosed that the polymer (B-1) has a number average molecular weight in the preferred range of 1,000 to 20,000. See paragraph [0020]. The Examiner asserts that this is within the claimed weight average molecular weight range.

The Examiner notes that JP '145 does not teach the claimed core/shell graft copolymer.

To remedy this deficiency, the Examiner relies on Meyer et al, which discloses a toughened blend of an aromatic polyester with 5 to 20 parts (per 100 parts of the polyester) of an impact modifier which is a blend of (a) 80-85 weight percent of a core/shell impact modifier and (b) 15 to 20 weight percent of a linear copolymer. The core/shell impact modifier has a polybutadiene core and at least one shell formed from methyl methacrylate and styrene. The linear copolymer contains 50 to 85 parts of units derived from ethylene, from 5 to 40 parts of units derived (meth)acrylic esters, and from 2 to 10 parts by weight of a copolymerizable monomer containing an epoxy group. See Abstract.

Applicants traverse the rejection.

Newly cited JP '145 relates to a thermoplastic polyester resin composition comprising a polymer containing a group reactive with a carboxylic acid (B-1) and a carboxylic acid anhydride (c) as the essential ingredients. In this sense, JP '145 does not relate to the thermoplastic polyester resin defined in the present claims.

In fact, JP '145 describes “use of a polymer containing an epoxy group (B1-b)” in Examples 3, 7 and 11 and in Comparative Examples 3, 8 and 13, and further a bisphenol F type glycidyl ether (a compound containing an epoxy group) is described in Comparative Examples 5,

10 and 15 as one of the ingredients of the polyester resin compositions with a statement that “the resin compositions do not correspond to the polymer (B-1) of the present invention”.

However, paragraphs [0045] [Table 1] and [0048] [Table 2] showing the effects of the resin compositions of JP ‘145 inform that the physical properties, including moldability of the compositions, could not be measured.

Further, a comparison between the test results in JP ‘145 in Examples 3, 7 and 11 obtained in compositions comprising the polymer containing an epoxy group (B1-b) (which the Examiner considers as corresponding to the viscosity modifier of the present invention), and the results in the Comparative Examples 3, 8 and 13, clearly shows that carboxylic acid anhydride (C) is essential and indispensable in JP ‘145, and thus the results in Comparative Examples 3, 8 and 13 in which no carboxylic acid anhydride (C) is used are inferior.

This means that in JP ‘145, the mere incorporation of the polymer containing an epoxy group (B1-b) into a thermoplastic polyester resin is incapable of increasing moldability, and that further incorporation of the carboxylic acid anhydride (C) is essential and indispensable.

That is, the above disclosure of JP ‘145 teaches away from using the core-shell graft polymer (C): CSR in the present invention. Thus, one of ordinary skill in the art would not have been motivated to combine the references as suggested by the Examiner with a reasonable expectation of success. For at least this reason, the present invention is not rendered obvious.

The Examiner considered that despite the teaching of Meyer et al of an impact modifier that comprises a blend of a core/shell graft polymer and a linear polymer, one of ordinary skill in the art would be motivated to employ only the core/shell graft polymer component of the blend in the composition of JP ‘145. However, this is contrary to the teachings of Meyer et al, which

disclose that the blend exhibits higher impact strength than would be expected from blends (i.e., thermoplastic polyester compositions) where only one impact modifier is employed and that acceptable melt viscosity for injection molding can be obtained. See column 1, lines 51-59.

Additionally, incorporating the blend of a core/shell graft polymer and a linear polymer into the thermoplastic polyester resin composition of JP '145 would adversely affect the thermoplastic resin composition and render it unsuitable for its intended purpose. Specifically, as pointed out in the last reply by Applicants, the blend of the specific core/shell impact modifier and a specific linear copolymer of Meyer et al contains, among others, certain amounts of units derived from ethylene, which are expected to lead to thermoplastic polyester resins with lower anti-draw down effect, which is the opposite of the desired effect of the present invention.

In this connection, the present claims recite a viscosity modifier *consisting essentially of* units (a), (b) and (c). Thus, the linear polymer of the viscosity modifier blend taught by Meyer et al is excluded by the present claims because the ethylene would adversely affect the basic and novel characteristics of the present invention. As previously pointed out, Comparative Examples 13 and 14 of the present invention demonstrate that the viscosity modifier containing an ethylene unit (ET) and the viscosity modifier containing an ethylene unit and a vinyl acetate unit (VA) lead to thermoplastic polyester resins with lower anti-draw down effect compared with the examples in which no units derived from ethylene are contained. Thus, one of ordinary skill in the art would not have had a reasonable expectation of success in combining the references as suggested by the Examiner. For at least these additional reasons the present invention is not rendered obvious.

Additionally, the present invention provides unexpectedly superior effects, which are summarized below:

EXAMPLE	anti-draw down effect	surface gloss	Izod impact strength
Example 4 (viscosity modidier (4)+CSR (IX))	85	81.1	120
Comparative Exp 3 (only viscosity modifier (4))	23	84.5	2.9
Comparative Exp 4 (only CSR (IX))	10	unable to be measured	
Comparative Exp 5 (only CSR (IX))	23	81.2	5.1

As understood from the above, Example 4 using both the viscosity modifier (4) having a certain relationship with anti-draw down effect and CSR remarkably excellent in anti-draw down effect compared with Comparative Example 3 using only the viscosity modifier (4), and further Izod impact strength is remarkably excellent in Example 4 compared with Example 5 wherein CSR (IX) is used in a large amount. These remarkably excellent results and effects attained by the present invention are distinguishable and unobvious. For this additional reason, the present invention is patentable over the cited references, whether taken alone or in combination.

Accordingly, Applicants respectfully request withdrawal of the rejection.

In paragraph 7 of the Office Action, claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable as obvious over JP '145 (in view Meyer (U.S. Patent 5,854,346) as applied to claims 1-6 and 9 above and further in view of Carson et al (U.S. Patent 5,321,056).

Applicants traverse the rejection.

Claim 8 requires the same components (A), (B) and (C) as in claim 1. Thus, the subject matter of claim 8 is patentable for at least the same reasons set forth above since Carson does not remedy the deficiencies of JP '145 and Meyer et al.

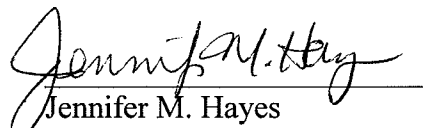
Accordingly, Applicants respectfully request withdrawal of the rejection.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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